Robust Budget Growth in FY 1998

Bettering the NIH average by half a percentage point, NIAID received a 7.6 percent budget boost in FY 1998 based on the outcome of the congressional conference, which resolves differences between the Senate and House versions of our appropriations bill.

Overall, NIAID received $1.351 billion in FY 1998 versus $1.256 billion in FY 1997.

NIAID director Dr. Anthony S. Fauci says, "We are very pleased that both chambers of Congress have once again shown their continued and generous support of NIH and NIAID."

The Institute's research project grant success rate—the number of grants funded compared to applications received—climbs to 33.5 percent, up from 32.6 percent last year.

Our FY 1998 appropriation contains significant resources for AIDS vaccine research. Included are $6.75 million for our HIV Vaccine Innovation Grant Program and $6.25 million for the new intramural AIDS Vaccine Research Center, a joint venture with the National Cancer Institute.

continued on next page

Inside

INITIATIVES & funding

New financial plan benefits grantees

This year's changes to NIAID's financial management plan (see box below) directly address the needs of our stakeholders.

Researchers will enjoy much smaller programmatic adjustments to new grants.

As we have done in the past, NIAID will reduce awards based on percentile ranks: applications with percentiles of 0-4.0 will be reduced 5.0 percent; 4.1-8.0, 7.0 percent; and 8.1 and higher, 9.0 percent.

Average budget decreases for new grants fall from 15.0 percent in FY 1997 to 7.0 percent this fiscal year.

Another piece of good news is our new higher limit on the amount awarded for a followup (recompeting or type 2) grant.

These are now capped at 20.0 percent more than the amount awarded in the last year of the previous grant, raised from last year's limit of 10.0 percent.

Meanwhile, two elements stay the same. The payline (the funding cutoff point) holds at the 24.0 percentile for non-AIDS and 26.0 for AIDS research.

And noncompeting research project grants continue to receive 3.0 percent inflationary increases. In FY 1998, we will also use $9 million to fund about 54 programmatically important grants with percentiles at the payline margin.

For initiatives, the Institute will continue to rely heavily on program announcements, carrying on our policy of stimulating investigator-initiated research.

New bridge awards

This fiscal year, NIAID is modifying its ever popular bridge awards to better help grantees make a smooth transition to their next award.

For the $10 million program, NIAID is making awards selectively after Council review and issuing them throughout the year. This is a departure from last year when we made bridge awards in percentile order at the end of the fiscal year.

1998 Financial Management Plan

- 24.0 percentile payline for non-AIDS research and 26.0 percentile for AIDS research.
- 3.0 percent inflationary increases to noncompeting research project grants.
- 7.0 percent average decreases to new grants compared to 15.0 percent last fiscal year.
- 20.0 percent cap on recompeting (type 2) research project grants.
- $10 million in bridge awards made selectively throughout the year.
- $9 million to award about 54 grants with percentiles at the payline margin.

$30 Million for Diabetes Research

NIAID is one of several institutes (and CDC) expected to gain from an FY 1998 appropriation of $30 million in new monies for research of immune-mediated diabetes.

A planning group of NIH staff, extramural investigators, research foundations, and representatives of patient advocacy groups met in early October to discuss initiatives and resource allocation.

These may be trans-NIH requests for applications; supplements for existing work, infrastructure, or resources; or pilot

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Future Monies: the Route to Initiatives

During the past several years, NIAID has been fine-tuning its system for determining where to target future research dollars.

Planning covers a three-year span (see figure below).

It begins with Institute planning meetings that rely on feedback from a broad base of people concerned with public health: extramural researchers, patients and advocates, physicians and other health professionals, industry scientists and leaders, Congress, the administration, and others.

To uncover the best opportunities for research progress, we integrate ideas from all these groups, planning future initiatives with our advisory Council.

In the newsletter and its Web site, we clue you into the loop as soon as possible: after Council approves what we call "concepts," the initial ideas for initiatives. Within a couple of weeks of each Council meeting, we publicize approved concepts on the Web.

Knowing what concepts are can help you plan your strategy for getting a grant.

The initiative section of the *Council News* Web site at *http://www.niaid.nih.gov/ncn/in-main.htm* keeps current lists of concepts and published initiatives—program announcements, requests for applications, and (links to) requests for proposals.

Knowing what concepts are and how to use the posted information can help you plan your strategy for gaining a grant.

Concepts embody the planning stages of an initiative. Though all concepts do not complete the cycle as published initiatives, concepts reveal high-priority research areas and topics in which NIAID would like to receive applications.

Savvy investigators will look closely to see whether their expertise lends itself to any of these topics. If so, they can begin planning months before an initiative is published, gaining valuable lead time.

From concept to initiative—how it happens

The rationale for new NIH initiatives must be approved by experts in the field, usually our advisory Council.

Acting as a "board of directors," Council's lay and scientific members have final approval authority for concepts and also help determine their characteristics, including funding levels, mechanism (e.g., grant or contract, grant type), and other key features.

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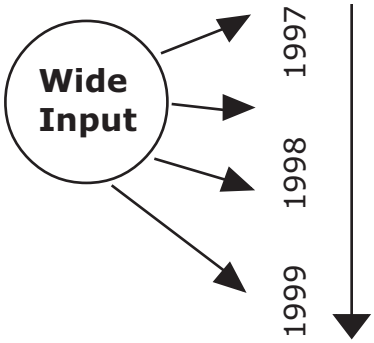
NIAID Planning Process



Time	Step
Jul-Nov	Identify research opportunities
Dec	Winter Program Review (WPR)
Jan	WPR to Council and concept clearance
Mar	Institute sends preliminary budget to OPM
Apr-Sep	Announce initiatives (PAs, RFAs, RFPs)
Jul	Summer Policy Retreat
Oct-Sep	Awards for winter 1997-1998 initiatives

Last year, NIAID began involving Council members and *ad hoc* advisors earlier in the process.

These experts now help us choose and develop initiatives, looking at scientific opportunities with NIAID's extramural divisions.

NIAID's twice yearly planning meetings let Institute management view the big picture and decide, based on feedback from the community, which concepts should move forward to the next step of Council review.

NIAID makes a definite commitment to award grants from its published initiatives.

At the subcommittee meetings that take place during Council, program staff present an outline of a proposed concept for Council's scrutiny. (NIAID has three Council subcommittees, one for each of its extramural program divisions.)

For each concept, the subcommittee looks deeply at its scientific merit, relative priority, appropriate budget, and funding mechanism. Council's regular and *ad hoc* members approve, disapprove, or suggest modifications to each concept.

After fine-tuning by Council and the research community, Council-approved concepts become published PAs, RFAs, or RFPs according to their Institute-wide priority and the amount of funds available for the fiscal year.

NIAID makes a definite commitment to award grants from its published initiatives.

DAIDS concept supports tuberculosis drug development

Council recently approved a concept from the Division of AIDS to recompete contracts to evaluate new anti-*Mycobacterium tuberculosis* compounds.

DAIDS will be requesting applications for four contracts that provide the following services:

- Conduct structure-based testing of new compounds.
- Perform screening for virulent *M. tuberculosis* in a liquid culture growth inhibition assay.
- Provide mouse models for evaluating promising drug candidates.
- Help identify corporate sponsors for candidate antibiotics.

In the meantime, researchers can use existing contracts, coordinated by the Tuberculosis Antimicrobial Acquisition and Coordinating Facility.

For discreet, confidential evaluation of a compound for antituberculosis activity, contact:

Dr. John A. Secrist III
Southern Research Institute
Birmingham, AL
phone*: 205/581-2276*
fax: *205/581-2870*
e-mail: *taacf1@sri.org.*

For information about the concept, call:

Barbara E. Laughon, Ph.D.
phone: *301/402-2304*
e-mail: *BL17u@nih.gov.*

New DAIT initiatives

NIAID's Division of Allergy, Immunology, and Transplantation wants researchers to apply their knowledge of immune mechanisms to vaccine development.

Program announcement ***Basic Mechanisms of Vaccine Efficacy*** is based on the idea that basic immunologists can improve vaccines by defining the underlying principles of immune system activation and regulation needed to anticipate and prevent infection.

The PA is on the Web at http://www. nih.gov/grants/guide/pa-files/PA-97-101.html.

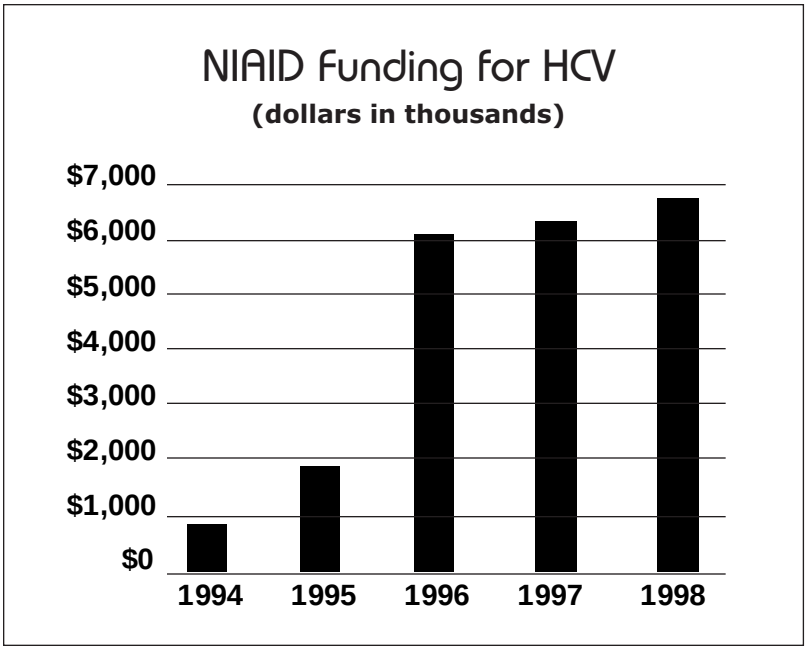
NIAID and the National Institute of Child Health and Human Development are cosponsoring another PA, ***Genes and Mechanisms Underlying Primary Immunodeficiency***, to identify and characterize genes that cause primary immunodeficiency diseases.

We are seeking applications to characterize the molecular basis of single gene defects, identify the immunologic role of defective gene products and their normal counterparts, and develop new approaches to diagnosis, treatment, and prevention.

The announcement is on the Internet at http://www.nih.gov/grants/guide/pa-files/PA-97-099.html.

NIAID Plans New Resources for Hepatitis C Research

Under the new strategic plan for hepatitis C developed by the Division of Microbiology and Infectious Diseases, NIAID will establish new research resources to help investigators make inroads into this burgeoning health problem.



NIAID hopes to create access to chimpanzees and important patient cohorts so investigators can characterize immune responses, identify surrogate markers, determine natural history and disease outcomes, and devise rational vaccine and other interdiction strategies.

We also plan to make some existing resources available through an NIAID-supported repository to facilitate sharing of the recently developed infectious clones as well as monoclonal antibodies and characterized viral pools. In the clinical arena, the Institute has enhanced its capability to conduct clinical trials in chronic carriers and hopes to build the capacity for studying the mechanisms of recovery and antiviral resistance.

NIAID is looking into the possibility of broadening its hepatitis C research program into a concerted NIH approach to study infection, disease, and sequelae in a variety of patient populations.

These efforts speak to the goals of NIAID's new strategic plan (see box at left), recently developed with the advice of expert virologists, hepatologists, immunologists, and epidemiologists.

Experts agreed that two advances would be key to progress toward meeting these goals: tissue culture models and small hepatitis C animal models closely resembling human infection and disease.

Both resources would help investigators study infection, replication, pathogenesis, and the immune response and provide systems for testing candidate vaccines and antivirals.

Hepatitis C Research Goals

- **Prevent new infections** by understanding transmission modes.
- **Develop new means to diagnose and intervene in chronic infections** by understanding pathogenesis, natural history, and progression.
- **Devise vaccine and immunomodulatory approaches** to prevention and interdiction by characterizing the immune response to infection.
- **Design antiviral therapies** based on viral replication strategies.

NIAID Is Focus of Better International Coordination for Research in South Africa

Several meetings involving U.S. and international agencies are supporting a move to enhance research collaboration and training with South Africa.

In July, an international meeting in Washington, the Gore-Mbeki Health Working Group, endorsed a proposal by NIAID to build a special relationship with South Africa in research and training.

The goal is to provide better coordination for topics of high priority to the region, e.g., HIV, tuberculosis, STDs, and those presenting unique research opportunities, such as malaria and exotic viruses, while being flexible enough to encompass other research areas important to NIAID.

Though new monies are not foreseen, building knowledge in South Africa would allow us to collaborate on future projects with researchers from there.

Among African countries, South Africa is uniquely poised to study many major health problems. A well-developed infrastructure, successful investigators, and strong national funding have built a leadership role for South Africa in biomedical research.

These factors give South African investigators an entree into the rest of Africa with its unique research opportunities, affordable costs, and potential to yield fast answers to research questions.

NIAID is the chief NIH sponsor of biomedical research in Africa and funds 40 percent of NIH projects in South Africa.

New $30 Million for Diabetes—*continued from page 2*

and feasibility studies. The advisory group will send its recommendations to NIH director Dr. Harold Varmus in the near future.

The new funds create an opportunity for researchers to develop or expand existing projects in relevant areas of immunology.

Watch for new initiatives, expected to be published this winter, to glean the topics in which NIAID and other institutes are interested.

Though specific initiatives are as yet undecided, NIAID is proposing several, including the study of immune tolerance, a vaccine for immune-mediated diabetes, viral etiologies of diabetes, the immunologic basis of islet cell engraftment, and autoimmunity centers of excellence.

The latter would establish research centers to evaluate pilot therapies for autoimmune diseases.

New NATO Program Funds Collaborative Research

The North Atlantic Treaty Organization (NATO) recently announced its new Science for Peace program, sponsoring collaborative research between NATO countries and partners in Central and Eastern Europe.

Participating scientists will work together on applied research and development projects related to industrial, environmental, or security-related issues.

The program strives to build new partnerships while bolstering science infrastructure in Central and Eastern European countries.

Projects are funded from three to five years and include money for equipment, travel, and training.

To apply, you fill out a four-page application form, due January 15 and May 15.

For a copy of the form or information, contact:

Science for Peace Program Office
Scientific Affairs Division
NATO
Brussels, Belgium
phone: *32-2-707-4619*
fax: *32-2-707-4232*
e-mail: *science.sfp@hq.nato.int*

POLICY & grants

Rebuttals Now Handled by Institutes

Because its rebuttal system did not resolve issues quickly and simply enough to be advantageous to applicants, NIH has changed the way applicants contest the results of peer review.

Central NIH no longer handles the final recourse for investigators, delegating the responsibility to the institutes.

To resolve problems, NIAID program staff work with the scientific review administrator in charge of the review of your application.

Your program officer is your primary contact point for problems you have about your application's review.

Your program officer is your primary contact point for any problems you have about your application's review.

Most problems should be worked out at this level.

If they cannot be resolved, NIAID also has a rebuttal officer who acts as the final arbitration point between the scientific review administrator and program staff.

The rebuttal officer can also recommend review by Council, the applicant's last recourse.

NIAID's rebuttal officer is the director of the Division of Extramural Activities.

Applicants can dispute a review for problems with scientific error or bias, factual error, or reviewer conflict of interest but not differences of scientific opinion.

Beginning the process

The new system is based on the idea that, if you feel the review was flawed, the best first step is to call your

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STTR Lives On

In September, the House reauthorized the Small Business Technology Transfer (STTR) program, which funds cooperative research between small technology companies and scientists at university, nonprofit, and federal laboratories.

The reauthorization extends the program through FY 2000, requiring NIH to set aside

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Applying for a Large Grant—Know the Rules

PIs seeking $500,000 or more in direct costs for any year on an unsolicited R01 or P01 must discuss their plans with their program officer *before* submitting the application.

Both NIH and NIAID policy requires an Institute prereview for these large applications.

After the discussion, the program officer assesses the application's feasibility and budget and lets the applicant know whether the Institute will accept it if submitted to NIH. Applicants who go on to submit an application *must* include a cover letter stating the name and institute of the program staff person who preapproved it.

Early discussion protects applicants from spending time putting together an application we may not accept.

NIAID accepts few large grant applications for review, and we weigh their prospects carefully.

Large grants handicap our ability to support a diversity of investigators, maintain our payline, and fund enough R01s to satisfy the research community and Congress. Funding depends on such factors as merit, program priority, and the availability of funds.

For the *Guide* notice on this policy, go to http://www.nih.gov/grants/guide/1996/96.05.03/notice-acceptance-fo003.html.

NIH news

NIH Reinvention Roundtable Highlights

On September 30, NIH held another Reinvention Roundtable to look into several reinvention initiatives, including modular grants, electronic review, and the move toward electronic research administration.

University and NIH representatives presented their moves toward the emerging electronic interface between NIH and extramural grantee organizations. This huge, multiyear undertaking will ultimately enable all application and grant processes to be conducted in an Internet-based environment.

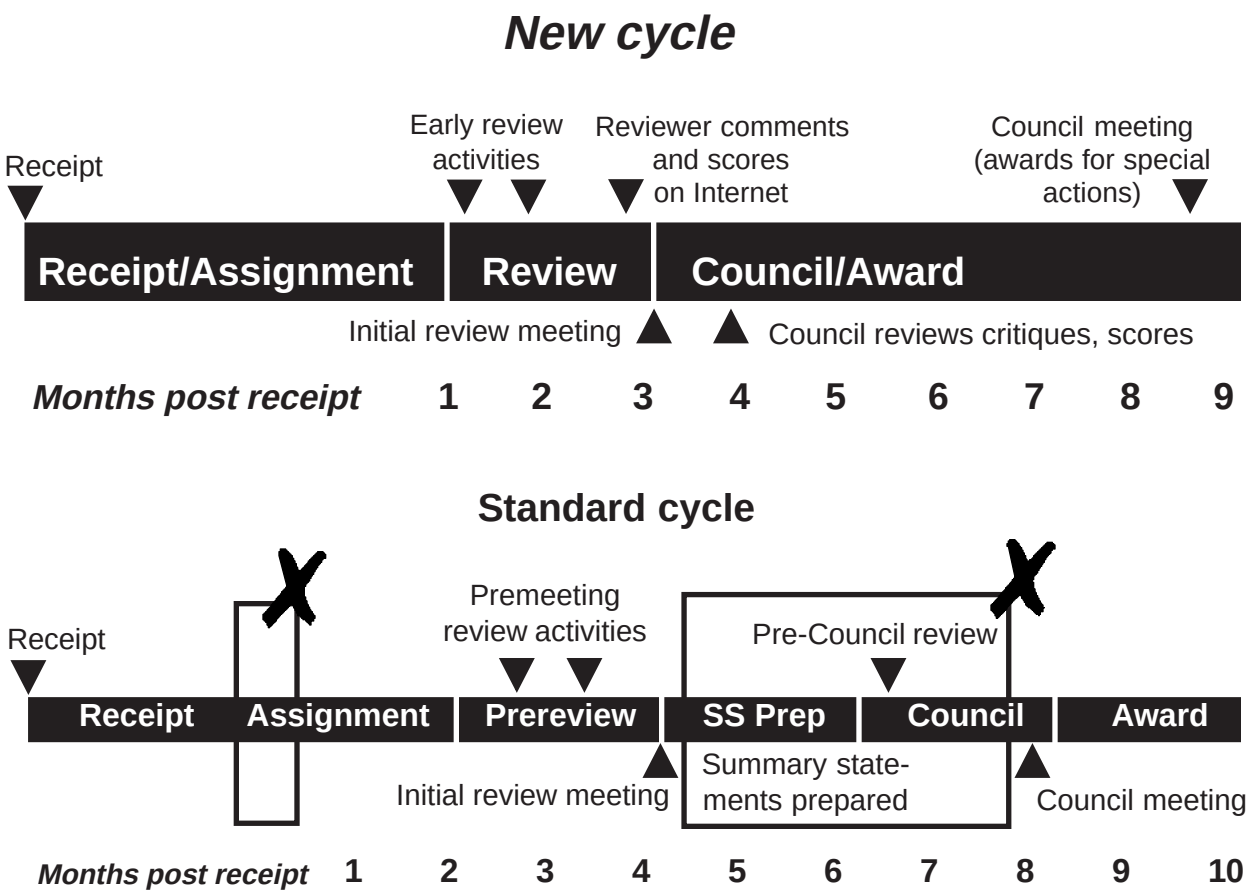
McGowan presents NIAID's expedited review system

At the meeting, NIAID deputy director Dr. John J. McGowan told the group about electronic resources the Institute has developed to cut the time from application to award.

The Internet-based systems—plus applicant self referral being piloted by the Center for Scientific Review (CSR, formerly DRG)—are shortening this timeframe from nine months to four or five.

The graphic below shows where time is saved. When applicants request assignment of their applications to an institute or center, it saves CSR administrative work at the beginning of the cycle.

New Four- to Five-Month Award Cycle



In our collaborative experiment with CSR's Tropical Medicine and Parasitology (TMP) study section, self-assignment enables CSR to move the receipt date up one month.

Then, electronic initial peer review activities save several additional weeks by cutting out the need to wait for summary statements to be prepared.

For the next step, electronic access to review data and electronic communications for Council members allow Council to complete its second-level review for qualifying applications much earlier.

As we reported previously, NIAID is collaborating with TMP on a year-long trial of NIAID's electronic initial review system that began in February. Several other NIH institutes are also piloting the system.

The new approaches have enabled NIAID to make scores of awards before Council meetings.

The NIAID and TMP collaboration is testing five innovations: 1) abbreviated amended applications, 2) delay of human and animal assurances, 3) and a tie-in to Council (second-level) electronic review as well as 4) electronic initial peer review and 5) applicant self-referral.

The new approaches have paid off well.

For the June review cycle, TMP summary statements were ready about eight weeks before NIAID's Council meeting. Thus, from this one scientific review group meeting alone, the Institute made 12 early awards.

As we have reported previously, reviewers used and liked the electronic format. In the TMP pilot, all reviewers but one used the electronic platform.

CSR has recommended switching to NIAID's electronic initial peer review system for all NIH review organizations within the next two years.

Merging with Council expedited review

During the past year, NIAID has been pioneering an Internet-based second-level review system for Council's second-level review.

Via the Internet, Council members review applications, exchange information, and approve applications for funding before Council meetings.

So far, it is working beautifully. Since Council began using the system over a year ago, it has approved 399 of 400 applications that met the criteria for approval (the one that did not was moved to another institute), enabling NIAID to make scores of awards before a Council meeting.

NIAID now conducts electronic second-level peer review of all grants not requiring special action by Council.

NIH Changes Web Address and Look for the *NIH Guide to Grants and Contracts*

NIH has completed phase one of a two-part overhaul of the Internet site for the *Guide for Grants and Contracts.*

The first phase, which moves the *Guide* from Gopher to the Web, is part of the NIH migration away from Gopher, completed in mid-October.

Since then, any links you have bookmarked to the *Guide* and other Gopher addresses are no longer valid.

For menu items, NIH will shunt you to the new address, but for individual documents you will get an error message.

To see where institutes are putting new monies, visit the *Guide* weekly for the latest NIH initiatives. The new Internet address is http://www.nih.gov/grants/guide/index.html.

For NIAID initiatives, view our user-friendly lists in the *Council News* Web site (for the URL, see box on page 10). Our program announcement table shows all active NIAID PAs at a glance.

Here's a bit of guidance for navigating the *Guid*e site.

When looking for the latest issue, click on the year and then

continued on next page

the date (the latest issue is at the top of the list). A big improvement to the site is a direct link from there to the full text of program announcements and requests for applications.

In the spring, the format will be totally revamped, with a new format and publication of initiatives and policy notices as soon as they are ready.

STTR Lives On—*continued from page 7*

0.15 percent of its budget for technology transfer to small businesses.

STTR builds relationships between research institutions and startup companies, often headed by university scientists.

Four other agencies contribute to STTR: the Department of Energy, the Department of Defense, the National Science Foundation, and the National Aeronautics and Space Administration.

How to Find Your Virtual Information Resource—the NIAID *Council News* Extramural Information Center

The easiest way to find NIAID's active program announcements and requests for applications is to go to the special *Council News* Web site for extramural investigators.

Here are two ways to get there:

Go to the Center's URL—

http://www.niaid.nih.gov/ncn/main.htm

Or from the NIAID home page at http://www.niaid.nih.gov, under Information, click on **NIAID *Council News* Center.**

News Flash!

NIH Eliminates R29s

As this newsletter went to press, NIH made a sweeping policy change to eliminate first support and transition (FIRST) awards (R29).

As of the June 1998 receipt date, new applicants will use the R01 instead.

Reviewers will be specially alerted to applications from new investigators. Levels of new grantees will stay the same because Institutes will set a goal of funding the same number of new investigators as they did previously.

This change follows the recommendations of a working group that looked at the success of different grant types in helping new applicants get an R01.

For more information, read the press release at http://www.nih.gov/news/pr/nov97/od-21.htm and the November 21 notice in the *NIH Guide.*

NIH Assesses Performance

NIH is doing its part in a government-wide effort to measure, assess, and report how well it is fulfilling its mission.

Since 1993 when Congress enacted the Government Performance and Results Act (GPRA), agencies have been defining the outcomes for which they will be held accountable. NIH is developing its measures, to be folded into the agency response.

An NIAID winter policy retreat discussion of GPRA was followed by a Council presentation by

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INSTITUTE & staff

Spotlight on Minorities: Focus Group and New PA

Dr. Fauci's recent meeting with leading minority researchers (reported in our last newsletter) has stimulated ideas for expanding numbers of minority scientists. His popular "focus group" meetings have triggered new concepts from many extramural groups, and the minority focus group was no exception.

As a result of the meeting, NIAID is planning new strategies for building the pipeline of biomedical researchers from minority populations.

PA in the works

The Institute expects to issue a program announcement in the next couple of months to boost support of young, minority scientists.

Modeled after a request for applications published by the Division of AIDS three years ago, the new PA will fund promising investigators with R01 grants in areas of interest to NIAID.

A key goal is to build collaborations among top-quality researchers, labs, and technologies.

Grants will be awarded to minority scientists who identify a senior-level mentor at a research-intensive institution to collaborate on a cutting-edge project.

Watch the *NIH Guide for Grants and Contracts* on the Internet at http://www.nih.gov/grants/guide/index.html for the announcement.

Give us your advice

We are looking for creative thoughts for a mentoring resource and would like to hear from you.

One idea discussed at the focus group meeting was to set up a Web site for mentoring. We would like your feedback on whether this type of resource would benefit emerging investigators and want to hear any other ideas you may have.

Please call Dr. Milton Hernandez at 301/496-3775, or send us an e-mail from the NIAID *Council News* Web site at http://www.niaid.nih.gov/ncn/feedfrm.htm.

Grantees who know a talented minority student or postdoc can apply for a supplement providing that person with salary, tuition, supplies, and more.

Research Supplements for Underrepresented Minorities (RSUM)—a big success

Grantees have the opportunity to participate in several existing minority programs that create big benefits for all.

By paying for a minority student or scientist on a funded grant, the $4.5 million Research Supplements for Underrepresented Minorities program is a win-win effort for everyone.

And the program is achieving its goals. More than 40 percent of RSUM recipients have moved on to gain independent grant support, and several recipients have been recruited by NIAID's intramural program.

If you have an NIAID grant and know a talented minority student or postdoc, you can apply for a supplement to your grant, providing that person with salary, tuition, supplies, and travel money.

High school, undergraduate, graduate, and medical students as well as postdoctoral scientists and faculty members qualify.

The application process is easy, and we will help you with the paperwork. For more information, call Anita Fladell at 301/402-3999.

continued on next page

Supplements for disabilities, re-entry

Scientists with disabilities or those re-entering a career after a break due to health or family reasons can also be funded.

For those with disabilities, the supplement can also pay for special resources, including interpreters for the hearing-impaired, special computer equipment, or even a technician.

For more information, call Dr. Hernandez.

Bridging the Gap

On October 28 and 29, NIAID held its annual "Bridging the Career Gap Symposium" to reach out to minority students and young scientists.

Every other year, we invite the more senior-level RSUM awardees and others to come to NIH for two intensive days of lectures and personal contacts. The interactive format hones grantsmanship skills while creating a mentoring-type experience.

At this year's meeting, participants heard how NIH works and explored options for starting a successful a research career.

For example, it's a good idea for beginning investigators to find a research niche by scouting for topics that are not saturated with a lot of funded researchers.

Our Web site can help. Use it and the *NIH Guide* to see in which areas NIH is looking for applications and keep tabs on future directions.

To help you find your entree into research funding, ask for opinions on where the needs are from Institute program staff, mentors, advisors, or funded investigators.

And be flexible enough to move into something new, for example, applying your expertise to another organism.

One way to get the preliminary data you need to write your first application is to ask funded investigators if they can hire you on a supplement to their grant.

Dr. Counts Leaves Minority and Women's Health Office

George Counts, M.D., has left his position as head of NIAID's Office of Research on Minority and Women's Health to join the Division of Microbiology and Infectious Diseases as assistant director for clinical trials coordination.

Until permanent changes are made, Dr. Fauci has appointed Dr. Hernandez as acting director and will assess a possible restructuring of the office to best meet Institute needs.

Dr. Hernandez will also continue as director of the Office of Science Training and Manpower Development in the Division of Extramural Activities.

In October, Dr. Counts began coordinating DMID's domestic and international clinical research programs.

AIDS Vaccine Research Committee Discusses Future Directions and Recommends Topics for New Program Announcement

At its September 30 meeting, the AIDS Vaccine Research Committee discussed ways to spur novel ideas in HIV vaccine research and reviewed the outcome of the Innovation Grant Program for Approaches in HIV Vaccine Research (see next article).

Led by chair David Baltimore, Ph.D., the committee discussed potential strategies for stimulating the field.

Members felt that more small animal model projects are needed, especially for genetically and reproductively engineered animals.

Also needed are strategies to make a more effective native envelope vaccine boost, studies of mechanisms affecting T-cell immunity, and the functional evaluation of antibodies made in

response to HIV. On the basis of these recommendations, NIAID has issued its second program announcement under the Innovation Grant Program; view it on the Internet at http://www.nih.gov/grants/guide/pa-files/PAR-98-007.html.

The new PA calls for grant applications in mechanisms affecting T-cell immunity and studies of native envelope structure and immunogenicity.

For more information, please contact Dr. Steve Bende at 301/435-3756.

The Innovation Grant Program encourages applications with novel ideas and high-risk or high-impact approaches. Using a special grant mechanism and accelerated review and award processes,

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NIAID Awards Innovation Grants for HIV Vaccines

In late September, NIAID announced the 58 applicants to receive more than $13.2 million in grant support under the Innovation Grant Program for Approaches in HIV Vaccine Research.

(For a list of grantees, go to the press release on the NIAID home page at http://www.niaid.nih.gov/newsroom/innovationawds.htm.)

The Institute was extremely pleased at the turnout from its creative program announcement published this March to stimulate the discovery and development of HIV vaccines.

More than 100 applicants heeded the call, many of whom are new to the field—32 awards will go to new NIAID grantees.

One- and two-year grants will focus on the structure and function of the HIV envelope protein, animal models for vaccines, and the mechanisms of antigen processing.

NIAID developed the initiative in conjunction with its AIDS Vaccine Research Committee.

"The grants will bring new people into the vaccine effort and will strengthen scientific areas the committee feels are important," chair Dr. David Baltimore told the Committee in September.

He also said he would not change any aspect of the approach used for the Innovation Grant Program.

Division of AIDS deputy director Dr. Carole Heilman agreed. Praising NIAID and the NIH Office of AIDS Research for their generosity, she described the effort as "remarkably successful."

Innovation Program Grants—Areas of Research

Examples of projects to be pursued are studies to:

- Identify sites and mechanisms of viral and immune cell interactions after the virus has attached to a cell.
- Develop novel approaches to analyzing the native structure of the HIV envelope.
- Improve the immune-stimulating ability of HIV proteins.
- Explore the impact of newly described or less studied cell types involved in the immune response to HIV with the goals of improving vaccine candidates, developing new genetically engineered animal models, studying HIV interaction with the host, and improving vaccine presentation to the immune system.
- Develop new and improved vectors.

Speedy application to award time

Thanks to the innovative approaches and hard work of NIAID staff, these awards were made in record speed: just four months from application receipt to award.

NIAID accomplished this feat by using multiple review groups, some of which operated simultaneously, and then whisked the applications through its expedited Council review system.

This system gives Council members immediate Internet access to summary statements (see the article on page 8 for more information).

NIAID Grantee Gets Presidential Award

At a White House ceremony on November 3, NIAID grantee Michele S. Swanson, Ph.D., was honored as one of 60 recipients of the Presidential Early Career Award for Scientists and Engineers.

Established by President Clinton last year, the award recognizes outstanding new investigators whose research is supported by ten government agencies. Dr. Swanson was among 12 NIH grantees rewarded with this prestigious honor.

The University of Michigan Medical School assistant professor won the award for her incisive work on the genetic and biologic factors that contribute to the pathogenicity of *Legionella pneumophila,* which causes Legionnaire's disease.

Through her FIRST award, Dr. Swanson will explore the interactions between macrophages and *L. pneumophila* that determine virulence.

Dr. Swanson isolated and characterized several *L. pneumophila* mutants defective for growth in macrophages while working as a postdoctoral fellow with Dr. Ralph Isberg at Tufts University's Department of Molecular Biology and Microbiology and the Howard Hughes Medical Institute.

Her lab in the Department of Microbiology and Immunology at the University of Michigan will apply genetic, molecular, and cell biological techniques to understand how bacterial factors identified by these mutants enable *L. pneumophila* to survive and replicate in macrophages.

In related studies, her laboratory recently found that expression of a number of *L. pneumophila* virulence traits is regulated by nutrient levels.

A detailed analysis of this regulatory pathway will facilitate identification of bacterial proteins important for growth in lung macrophages and survival in the environment.

After graduating with a B.S. in biology from Yale University, Dr. Swanson worked on macrophage function in the laboratory of Dr. Samuel C. Silverstein at The Rockefeller University and Columbia University in New York.

As a graduate student in the laboratory of Dr. Fred Winston in the Genetics Department of Harvard University, she analyzed proteins important for gene expression, using *Saccaromyces cerevisiae* as a model system.

Sequencing *M. avium*—We Need Your Help!

NIAID recently made an award to sequence the entire genome of *Mycobacterium avium,* and before work gets under way, we are seeking input from the extramural community on which strain to sequence.

Among the factors to consider are the source and history of the isolate, its serovar, pathogenicity in humans, morphotype, genome content (known deletions, plasmids), transformability, and virulence in mice and other animal models.

Strains that have been proposed include MAC 104 and A5 SmD.

NIAID made the award to The Institute for Genomic Research, Rockville, MD, principal investigator, Robert Fleischmann, Ph.D., in response to the program announcement "Innovative Drug Discovery in AIDS Opportunistic Infections."

Please send comments via e-mail by December 20 to Barbara E. Laughon, Ph.D., Division of AIDS, at BL17u@nih.gov or call her at 301/402-2304.

Your Friendly Neighborhood Technology Transfer Service Center

As Dr. Fauci announced at the last Council meeting, the NIAID Office of Technology Development will offer its services and expertise in technology transfer to other NIH institutes on a cost-reimbursement basis.

Within the next few months, the office will become one of three institutes that serve as NIH technology transfer service centers.

The Office of Technology Development was encouraged to pursue this approach based on the outstanding expertise of its seven staff members.

With the new arrangement, we expect even more growth for our staff as the office's members further expand their knowledge and experience.

And user institutes gain access to expertise they may not have in-house.

NIAID has a large technology transfer portfolio of about 200 issued or pending patents, hundreds of clinical trial and drug screening agreements, 60 active Cooperative Research and Development Agreements (CRADA), and more than 150 licenses.

Balancing legal and scientific exigencies, the Office of Technology Development negotiates agreements with extramural institutions for the transfer of materials, the conduct of basic research or clinical trials, and the use of companies' proprietary compounds.

The office assists both NIAID intramural researchers and extramural program officers in establishing these cooperative research relationships with companies, other governmental agencies, universities, and foundations around the world.

For intramural scientists, the office evaluates the patentability and commercial potential of inventions and facilitates patenting. If you need guidance on any of the topics listed in the box above or related areas, call the Office's acting director, Mark Rohrbaugh, J.D., Ph.D., at 301/496-2644, fax 301/402-7123.

When an Extramural Scientist Should Call NIAID's Office of Technology Development

For collaborations with intramural

- Arrange formal collaborations, such as CRADAs, with intramural investigators.

For NIAID-supported research

- Find out what to do if your institution does not want to pursue a patent or if the inventors request a waiver of patent rights.
- Answer general questions about government patent issues.

NIAID Plans Its 50th Anniversary Celebration

On November 19, 1998, NIAID will hold a 50th anniversary celebration featuring a full day of lectures by prominent guest speakers.

Extramural researchers are invited to attend.

Located on the NIH Bethesda campus, the lectures will cover a range topics on the theme of current accomplishments that enhanced public health and future directions, including malaria, emerging diseases, AIDS, transplantation, immunology, vaccines, and others.

FEATURE article

New Technologies Will Drive Biomedical Research

New breakthroughs in bioengineering and imaging technology are poised to revolutionize laboratory research and give much faster answers to clinical and basic science questions than ever before possible.

Microchip and microarray technologies can spew out vast amounts of genetic information on microbes and host responses, speeding up research and treatment and creating tools to manipulate the immune system.

While seeing the promise of these exciting technologies, NIAID is wrestling with defining what it should be doing to bring them to labs we support.

At the Summer Policy Retreat, Institute management began tackling this issue with a presentation by Dr. Carol A. Dahl of the National Cancer Institute about some of the new molecular analysis tools, who is developing them, and the potential role of government agencies.

Let us know what your needs are and which approaches would most benefit you.

E-mail us now!

At this point, NIAID is asking for feedback on the role extramural researchers would like us to play to help them access these exciting new resources.

We are trying to define what, if anything, we should do to make the new technologies available to research labs.

You can help by letting us know two things. First, To what extent could you immediately make use of these technologies? Could you capitalize on such a resource if it were available to you now?

And, second, What is your broad vision of the use of DNA chip and array technologies in your field?

Please tell us what your needs are and also which approaches would be most beneficial for you.

Send an e-mail message to a new internal NIAID working group (address: chips@flash.niaid.nih.gov), which is sorting out which course to pursue.

The group is assessing short- and long-range goals and priorities and some related issues, including training in informatics.

Chips and microarray technology

Of emerging technologies, chip technology is most ready to burst into the research arena.

Based on DNA hybridization reactions, microarrays or DNA microchips enable the simultaneous, high-throughput analysis of thousands, even hundreds of thousands, of genes.

Chips and microarrays gather information much more quickly and easily than previously possible, and their application is vast.

They can be used for diagnosing genetic diseases, finding aberrant gene expression and induced or suppressed genes, and studying the evolution of microbial genes in response to therapy.

Chips reveal the genetic makeup of an organism in exquisite detail, including changes it may undergo in response to medication.

Such a view should help us understand pathogenesis, drug resistance, and other key mechanisms.

Though the new systems let investigators watch gene expression wax and wane and view the consequences of genetic changes, developers are still working out shortcomings.

These include limitations on kinetic analyses and difficulty in discriminating within gene families.

Nevertheless, scientists will eventually use these technologies to screen libraries of immunologically interesting genes, compare expression levels in infected and normal cells, watch protein/DNA interactions, and map cDNAs.

Eventually, when all normal gene patterns are known, aberrations associated with illnesses will be readily spotted, enabling physicians to predict responses to therapy and tailor therapies to patients.

Chips are now being used experimentally to detect mutations in HIV that may make the virus drug resistant.

Already this approach is monitoring responses to therapy in HIV-infected patients so physicians can tailor therapy to an individual patient's unique response to medication.

Already these new approaches are monitoring responses to therapy in HIV-infected patients so physicians can individually tailor therapies.

The new technologies are also expected to move drug development from an empirical to a conceptual design framework, helping predict which molecules will ultimately be successful.

How chips work

DNA chips are tiny silicon structures that can house thousands of DNA probes.

The probes are activated together with fluorescent target DNA, a drop of blood, or a patient's cells, and the two DNA molecules hybridize.

The chip is then scanned by lasers, creating an image on a computer screen that shows which DNA probes on the chip match the DNA in the sample, enabling rapid data analysis.

Another technology, called DNA microarray, uses a robotic devise to place thousands of DNA or PCR samples on tiny spots on a glass slide.

After hybridization with fluorescent target mRNA, signals are detected by a scanner.

Each chip or array can scan thousands of sequences in minutes.

NIAID Meetings Discuss How to Exploit New Technologies

NIAID recently held two meetings to explore how these technologies may benefit our research. We are now at a crossroads of opportunity for getting extramural researchers involved in designing and using new technologies to gain fresh perspectives on research problems.

In September, the Division of Allergy, Immunology, and Transplantation sponsored a workshop called "Advancing Immunology Research Through Technology."

The meeting brought together scientists from diverse fields.

Immunologists Drs. Abraham Kupfer, Jeffrey Bluestone, Barbara Bierer, Philip Murphy, and Judith Abrams and bioengineers Larry McIntire, Daniel Hammer, Doug Lauffenburger, and Kam Leong participated along with Scott Fraser, Robert Rubin, and Mark Gourley, who are working on new imaging technologies, and Louis Staudt, who is developing lymphocyte cDNA gene chips.

As they explored the advantages of several new technologies, participants agreed on the benefits of more interactions and collaborations among bioengineers, physicists, and mathematicians.

Cross-disciplinary approaches open new perspectives and nourish the synergistic intellectual creativity needed to develop new technologies and ideas for solving research problems.

Recommendations for the future included more small workshops bringing together scientists from different fields and invitations of bioengineers and imaging scientists to national immunology meetings.

Because many newly emerging technologies are expensive and require input from many investigators, participants felt that current review and funding mechanisms are not optimal for supporting this type of cross-disciplinary research.

continued on next page

Tuberculosis Genome Meeting Explores Uses of New Technologies

On September 15-16, the Division of Microbiology and Infectious Diseases held a workshop, "Exploiting the TB Genome" to identify areas where NIAID can help the mycobacterial research community to use *Mycobacterium tuberculosis* and *Mycobacterium leprae* genome sequencing information. Both genomes are expected to be sequenced within the next several months.

Dr. Emil Gotschlich of The Rockefeller University chaired the panel of experts, who examined post-sequencing issues facing tuberculosis investigators.

The availability of the entire genome sequences of *M. tb* and *M. leprae* will open new approaches to studying mycobacterial biology, the pathogenesis of tuberculosis and leprosy, and the roles of host-pathogen interactions.

The knowledge will make possible rapid, "whole genome" approaches to identifying new drug targets, vaccine candidates, and diagnostics.

The group explored the potential of new technologies for high-volume data analysis as applied to tuberculosis research.

Participants also encouraged NIAID to help tuberculosis researchers develop a true collaborative framework, much as the yeast and nematode research communities have done.

The panel was amazed to hear that, through stimulation by NIAID, the number of tuberculosis research laboratories has risen from a handful in 1988 to more than 100 today.

Major Recommendations of the TB Workshop

- **Facilitate the development and broad distribution of microarray techniques** for whole genome sequence and expression analysis to accommodate the academic research communities' needs.
- **Foster the development of improved genetic tools for mycobacterial research** and encourage the systematic analysis of a collection of defined *M. tuberculosis* mutants through research collaborations. This would include whole genome sequencing of the genetic model strain *M. smegmatis*.
- **Establish and maintain a fully characterized *M. tuberculosis* strain and clinical isolate bank** linked to clinical records.
- **Ensure support for a mycobacterial-specific sequence database** easily accessible to researchers.

AIDS Vaccine Research Committee—*continued from page 13*

the Innovation Grant Program provides for rapid responses to opportunities in targeted areas in AIDS vaccine research.

At the September AVRC meeting, Dr. Baltimore also suggested enhancing the visibility of the committee by expanding its workshops to more areas and holding more meetings with industry, noting that the latter have been highly productive.

The group also heard four presentations on generating and assaying neutralizing antibodies from Drs. Dennis Burton, John Mascola, David Montefiori, and John Moore.

The committee's next meeting in January, also slated for Bethesda, will focus on simian models of HIV and related retroviruses.

Rebuttals Handled by Institutes—

continued from page 7

program officer to determine whether you would be better off revising and resubmitting the application or contesting the review.

If you decide to pursue a rebuttal, write a letter to your program officer indicating areas of disagreement. (This can be done at any point in the peer review process.)

The program officer will forward a copy to the rebuttal officer and let you know the outcome within 30 working days after either the Council meeting or the date your letter was received, whichever is later.

Several roads to resolution

Rebuttals can be resolved in different ways. If program staff and the scientific review administrator agree the review was flawed, they can recommend a rereview.

If they do not feel the review was flawed, they will advise you to submit a new or revised application.

The rebuttal officer reviews the case only when program and review staff do not agree or when the applicant does not agree with the staff recommendation.

If the applicant is not satisfied with the rebuttal officer's decision, the rebuttal goes to Council. Council members with appropriate scientific expertise will review the rebuttal, application, summary statement, and recommendation of NIAID staff. Council may recommend rereview, whether by the same or a different scientific review group, or concur with the initial review. Your program officer will notify you of this decision.

GPRA—

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Dr. Lana Skirboll, NIH associate director for science policy. Dr. Skirboll's group is defining goals and measurable indicators for every NIH program.

As several Council members commented, this type of accountability has been standard management practice in industry and academia for several years.

She commended NIAID for being "a strong planning institute," telling Council, "Not every institute does planning with as much enthusiasm as Dr. Fauci does."

Though quantitative assessments are a major feature of GPRA, qualitative aspects are key for NIH. All players agree, and the law stipulates, that for research organizations, substance must be taken into account.

After performance goals and indicators for research and research capacity are in place, we will begin reporting performance every year. In February, NIH will make its performance plan public; the first performance report is expected in 1999.

NIH to Hold Bioengineering Symposium This Winter

On February 27-28, NIH is sponsoring a symposium called "Bioengineering Research: Building the Future of Biology and Medicine." The meeting will explore a full range of topics from imaging and informatics to therapeutics.

Plenary speakers

Scott E. Fraser, Ph.D., California Institute of Technology

Leroy E. Hood, M.D., Ph.D., University of Washington

O. Howard Frazier, M.D., Texas Heart Institute

Buddy Ratner, Ph.D., University of Washington

Rakesh K. Jain, Ph.D., Harvard University

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